

**REMARKS****I. Status of the Claims**

Claims 1-36 are pending, and new claims 37-40 are added. Claims 1-13, 32, 33 and 35 are allowed. Applicants appreciate the Examiner's allowance of claims 1-13, 32, 33 and 35. Claims 14-31, 34 and 36 are rejected.

In the amendments above, Applicants have amended the specification to expressly recite portions of WO 85/03510, which was incorporated by reference in its entirety for all purposes at page 4, lines 3-4 of the specification. No new matter is added by this amendment.

Applicants have added new claims 37-40, which correspond to claims 14, 29, 31 and 34, respectively, with the term "carboxylic acid" substituted for the term "carbonyl." Support for these claims is found throughout the specification and particularly in claims 14, 29, 31 and 34 as originally filed, as well as at page 12, lines 18-22.

Applicants have amended each of claims 14, 16, 29, 31 and 34 to recite "hydrophobe reactant different from the AMPS reactant and different from the alpha, beta-unsaturated carbonyl compound." Support for the amendment to these claims may be found throughout the specification and claims as originally filed. Support for this amendment may be found, for example, at page 6, lines 8-19 (noting that the hydrophobes preferably are unreactive or at least substantially unreactive with the *other* polymerization reactants").

Claims 15, 17-21, 24 and 26 have been amended to depend from claim 37, and claim 30 has been amended to depend from claim 38. Support for these amendments is found in the specification and particularly in claims 15, 17-21, 24 and 26 as originally filed and at page 12, lines 18-22.

Applicants have enclosed a Fee Transmittal form for payment for 4 additional independent claims (claims 37, 38, 39 and 40).

Applicants request entry of the amendments and reexamination of the application.

**II. Each of claims 14, 15, 17-27, 29-31 and 34  
Meets the Enablement Requirement of 35 U.S.C. § 112, First Paragraph**

Claims 14, 15, 17-27, 29-31, and 34 are rejected under 35 U.S.C. § 112, first paragraph. The Examiner asserts that the specification does not reasonably provide enablement for alpha, beta unsaturated carbonyl compounds. Applicants respectfully traverse the rejection.

Each of independent claims 14, 29, 31 and 34 meets the enablement requirement of 35 U.S.C. § 112, first paragraph. Alpha, beta unsaturated carbonyls are expressly identified at page 6, line 12. Further, the specification has been modified to expressly incorporate portions of WO 85/03510. In the specification as originally filed WO 85/03510 was incorporated by reference in its entirety for all purposes (page 4, lines 6-9 of the original specification) and, accordingly, the text of WO 85/03510 provides enabling disclosure and not merely background material.

The text of WO 85/03510 copied into the specification provides numerous examples of carbonyls beyond carboxylic acids, for example, amides (e.g., acrylamide, methacrylamide, fumaramide, etc.), carboxylic acids (e.g., methacrylic acid, itaconic acid, fumaric acid, etc.) and esters and aminoalkyl esters of unsaturated carboxylic acids that satisfy the element “alpha, beta unsaturated carbonyl compound.” Accordingly, the specification fully supports and enables “alpha, beta unsaturated carbonyl compounds.”

In addition, the specification provides numerous examples of how to make and use such compounds. See Examples I-VII on pages 22-37 of the specification. It is well established that the enablement requirement can be satisfied by at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of a claim. The present specification teaches the use of and discloses numerous examples meeting the claim element “alpha, beta unsaturated carbonyl compound,” and the person of ordinary skill in the art would not be required to perform undue experimentation. Thus, the specification enables the subject claims. Accordingly, the rejection is improper and should be withdrawn.

Each of claims 15, 17-27 and 30 is fully enabled under 35 U.S.C. § 112, first paragraph. In particular, each of these claims has been amended to depend from new claims 37 or 38, which recite an “alpha, beta unsaturated carboxylic acid compound” instead of a carbonyl compound. The Examiner has indicated at paragraph 2 of the present Office Action that the specification is

enabling for alpha, beta unsaturated carboxylic acid compounds. Accordingly, the subject claims also are enabled. Applicants request withdrawal of the subject rejection.

**III. Each of claims 14-27, 29-31, 34 and 36  
Meets the Requirement of 35 U.S.C. § 112, Second Paragraph**

Claims 14-27, 29-31, 34 and 36 are rejected under 35 U.S.C. § 112, second paragraph. The Examiner asserts that it is not clear if the claim is satisfied by the combination of AMPS and ester compounds only. Applicants respectfully traverse the rejection.

Each of independent claims 14, 16, 29, 31 and 34 has been amended above to calls for AMPS reactant selected from acrylamidomethylpropanesulfonic acid, salts thereof and a mixture of any of them, alpha, beta-unsaturated carbonyl compound different from the AMPS reactant, and hydrophobe reactant different from the AMPS reactant and different from the alpha, beta-unsaturated carbonyl compound. Accordingly, independent claims 14, 16, 29, 31 and 34 as amended meet the definiteness requirement of 35 U.S.C. § 112, second paragraph.

Each of claims 15, 17-27 and 30 depends directly or indirectly from one of claims 14, or 29. Therefore, claims 15, 17-27 and 30 meet the definiteness requirement of 35 U.S.C. § 112, second paragraph for at least the same reasons.

Claim 36 recites an alpha, beta unsaturated carboxylic acid compound and not a carbonyl compound. As such, claim 36 meets the definiteness requirement of 35 U.S.C. § 112, second paragraph.

The Examiner also asserts that claims 20, 29, 30 and 36 are indefinite because the percentages add up to more than 100%. Applicants respectfully traverse the rejection.

Claims in which the concentration could be hypothetically selected to exceed 100% are not indefinite. It is well understood in claims of this type that the percentages are necessarily selected such that the total is not more than 100%. The claims are simply not read to include compositions that are impossible to formulate. See MPEP 2173.05(c)(II), *citing In re Kroeckel*, 504 F.2d 1143 (CCPA 1974). Issued patents routinely include claims reciting percentage ranges whose upper limits sum to more than 100%.

Accordingly, claims 20, 29, 30 and 36 of the subject application are definite and meet the requirements of 35 U.S.C. § 112, second paragraph. Applicants request withdrawal of the rejection.

**IV. Claims 28-30 and 36 are Patentable over Fan et al.**

Claims 28-30 and 36 are rejected under § 103(a) in view of Fan et al., US 4,599,390 ("Fan et al."). The Examiner asserts that Fan et al. teaches a water soluble polymer which can comprise AMPS, acrylamide, carboxylic acid and a hydrophobic acrylate or methacrylate monomer. The Examiner acknowledges that Fan et al. differs from the subject claims in that a specific example of the use of a hydrophobic acrylic or methacrylic ester is not disclosed. The Examiner asserts that it would be obvious to make copolymers according to Fan et al., including those which comprise hydrophobic acrylic or methacrylic esters, given the teaching of Fan et al. that such polymers are useful as flocculating agents. Applicants respectfully traverse the rejection.

Claim 28 is patentable over Fan et al. because Fan et al. fails to teach or suggest a water soluble hydrophobe associative polymer having functionality including at least sulfonate groups, carboxylate groups and hydrophobes associative with one another in a saturated aqueous solution of an alkali metal salt of a carboxylic acid. In particular, nowhere does Fan et al. teach or suggest water soluble hydrophobe associative polymer having functionality including hydrophobes associative with one another in a saturated aqueous solution of an alkali metal salt of a carboxylic acid. That is, there is no teaching or suggestion that Fan et al.'s flocculation polymers provide would or could or should have such properties. To the contrary, Fan et al. expressly states that its polymer is not soluble in high salt solutions. Thus, claim 28 is patentable over Fan et al.

Fan et al. also fails to teach or suggest the subject matter of claims 29, 30 or 36. Fan et al. fails to teach or suggest each and every element of the claims. Fan et al. fails to teach or suggest the use of a hydrophobe reactant selected from acrylic esters, methacrylic esters and mixtures thereof, as required by claims 29 and 36. The Examiner acknowledges at paragraph 6 of the present Office Action, that "a specific example of the use of a hydrophobic acrylic or

methacrylic ester is not disclosed.” Absent a teaching or suggestion of the acrylic or methacrylic esters of the subject claims, Fan et al. cannot render the subject claims obvious.

Further, nothing in Fan et al. or elsewhere has been identified by the Examiner that would motivate one of skill in the art to modify the Fan et al. polymer to incorporate an acrylic or methacrylic ester. Contrary to the Examiner’s assertion, Fan et al. does not teach or suggest that polymers modified to include acrylic esters, methacrylic esters or mixtures thereof are useful as flocculating agents, given that Fan et al. makes no reference to such a polymer in any way.

Claim 30 depends from claim 29 and is patentable over Fan et al. for similar reasons and for the additional reason that claim 30 recites that the hydrophobe reactant of claim 29 has a -COOR moiety wherein the R moieties, as moieties of the reaction product, are hydrophobes associative with one another in a saturated aqueous solution of an alkali metal salt of a carboxylic acid. As discussed above, Fan et al. provides no teaching or suggestion that the Fan et al. polymers have such a property. Thus, claim 30 is patentable over Fan et al.

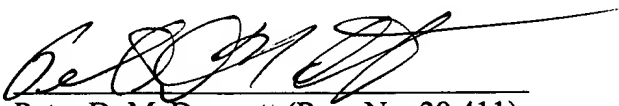
Applicants request withdrawal of the rejection.

## VI. Conclusion

Applicants respectfully request entry of the foregoing amendments and reexamination of the application.

Respectfully submitted,  
Benton et al.

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Dated



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